Suggestion of Global Leader Model (GLM) and Effect of the GLM as an Education Environment on Promotion of Cognition, Creativity and Leadership of Young Children[b]

Kyunghwa Lee[a]
Soongsil University, Korea
Hyejin Yang
Soongsil University, Korea

Abstract

Future global knowledge and information society requires a global leader who is a self-directed learner, creative problem solver and excellent leader in diverse fields in order to cope with the competitive society of the future and creative education environment. Accordingly, a teaching strategy that promotes higher thinking skills such as critical thinking, creativity and leadership is needed. Therefore, a 'Global Leader Model (GLM)' as a creative education environment that guides a curriculum and programs for promotion cognition, creativity and leadership of young children that was developed by Lee (2009) was suggested in this study and identified the effect of the program based on the GLM. The GLM includes three categories of ability: cognition, creativity, and leadership. The cognitive area contains cognitive factors such as a logical, analytical, and critical thinking, comprehension, inference, reasoning, and relationships. The creativity area contains the creative ability (fluency, flexibility, originality, elaboration, imagination), the creative personality (curiosity, sensitivity, task commitment), and a creative problem-solving ability. The leadership area contains self-leadership, servant-leadership and creative-leadership. Based on the "Global Leader Model", diverse programs will be developed to promote academic talents in these three categories of abilities.

Keywords: Cognition, creativity, leadership, global leader model (GLM), education environment, GLM Program

[a] Corresponding author: Kyunghwa Lee, Soongsil University, Dept. of Lifelong Education, 369 Sangdo-ro, Dongjak-gu, Seoul, 06978, Korea. E-mail: khlee@ssu.ac.kr

[b] This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A5A2A01024548)

Received: 10 November, 2018, Revised: 1 December 2018, Accepted: 16 December 2018

Introduction

In a society called the 'Fourth Industrial Revolution Era', talent with creativity, self-directedness and leadership can play an important role. In future society, human resources with creativity are essential for productivity and national competitiveness, so it has an important priority in fostering leaders with cognitive ability and creativity that create high value in national policy. This means that early discovery and fostering of human resource creation personnel is a key factor affecting the competitiveness of the nation and the company.

Developed countries have placed special emphasis on fostering 'brain-ware' in order to develop industries that have high productivity and creative ideas and to increase creative class. Because Korea has limited available natural resources, the best way to increase national competition with the leading powers in international society will be to find and educate high-level human resources. Korea has today achieved remarkable growth in the world, recording outstanding achievement in 'international exhibition of invention, new technology and new product' when compared to the information and technology powerhouses, as well as being recognized as a nation that holds many worldwide patents in the areas of life science, cutting-edge medicine, and the IT industry. These accomplishments have resulted from Korean ability, its indomitable spirit, and enthusiasm for education, accepting challenges, and its creativity. The extraordinary, outstanding, and creative human resources in Korea gain special attention from other nations (Lee, 2009).

It is common to consider human resources, not capital, as the essence of national competition in the global competition system. In order to cope effectively with future society, schools must promote the self-directed learners, insightful learners, learners with fluent and flexible thinking, and leaders in various fields. In order to achieve these goals, efforts to detect and develop learners' potential talent and creative problem-solving skills must be made during young childhood in the early developmental stages. Namely, it is necessary to observe and identify the individual characteristics such as cognition, creativity, and leadership, to encourage thinking and learning with self-regulation at early ages, and to develop leadership qualities and advanced thinking including creativity, creative problem-solving, creative thinking.

The Ministry of Education of Korea established the creativity education policy in 2009 and developed the curriculum for creativity promotion and applied it to elementary and junior high schools. In 2015, the Ministry of Education announced the curriculum for fostering core competencies and made efforts to foster global creative talents. It is time to change perspectives regarding early child education, especially for the young children in kindergarten. This requires developing facilitated or gifted education in general education and changing the perspective that its initiation should not to be until the upper grades that produce inventions or patents, or that the high school period is the proper time because science or art are manifested during that time. Namely, we need to reform our facilitated educational system to develop global leaders, with specialized education to explore

extraordinary cognitive areas, and education to develop creative potential, including the pursuit of university education.

Therefore, in recognition of those needs, Lee (2009) developed the Global Leader Model, the central tasks include defining the concepts of cognition, creativity, and leadership of for the young children and elementary school students whom need to educate, identifying the factors that explain those concepts, and determining how to measure those factors to illuminate individual differences and characteristics in cognition-creativity-leadership. Then, once those factors are set up children's individual capabilities are differentiated, it becomes necessary to develop the best global leader program for systematically developing children's capabilities, and to study and apply specific guidelines and methods for teacher training according to the program. In order to develop these capabilities in young children and primary graders for prospective global leadership, their cognitive abilities, such as creativity, thinking skills, and leadership, need to be considered. Then an effective educational program for global leaders needs to be developed and educational application in real practice needs to be administered.

In accordance with the stated necessity, and to spread the results overseas, "Global Leader Model (GLM)" that developed by Lee (2009) was translated into English and suggested in this study. And identify the effects of the program based on the GLM, addressed the effectiveness and usefulness of the model that guides a curriculum and progr ams for fostering cognition, creativity and leadership.

The Global Leader Model (Lee, 2009)

The concept and sub-variables of cognition

Cognition is a term referring to the information stored in memory and the processes of acquiring, retrieving, and utilizing information in the memory system. Namely, while cognition is associated with a general concept that contains all kinds of perceptive activities including perception, imagination, reasoning, and judgment, cognitive process implies the process that performs the cognitive activity (perception and thinking activity). It refers to phenomena that contain the mental processes involved in perceiving and memorizing, information processing procedure gaining and memorizing, planning, problem-solving, and higher mental process like perception, memory, thinking, reasoning, judgment, and problem-solving. Cognitive skills, which refer to the ability to effectively operate on knowledge and information, can be classified into several levels based on complexity. Basic cognitive skills include categorization, sequencing, comparison, understanding of elements or characteristics, understanding of relationship and types, grasping main ideas, confirming errors, deduction, induction, and analogy. These basic skills can be divided into 'organizational skill' which includes classification and sequencing, 'analytical skill' which includes comparison, understanding of elements or characteristics, understanding of relationship and types, grasping main ideas, and confirming errors, and 'reasoning skill'

which includes induction, deduction, and analogy. Cognitive ability refers to the way we acquire and use knowledge, including knowledge, comprehension, thinking skill, problem-solving, critical power, and creativity (Korean Educational Psychology Association, 2000).

On the basis of concepts about cognition, this study includes IQ, knowledge, information, comprehension, thinking skills/inquiry, problem-solving, critical power and creativity in the cognitive area in order to develop a GLM that fosters cognition, creativity, and leadership. Subdivisions in each category include multiple intelligences (linguistic, logical, spatial, natural, musical, musical, bodily kinesthetic, intrapersonal/interpersonal), critical/logical thinking (deductive/induction thinking, analogy), domain knowledge (language, math, science), intuitive insight, spatial/visual ability, reasoning, and verbal understanding. And basis on the GLM, the cognition/thinking skill program for fostering the young children's talents were developed.

Developing the cognition/thinking skill program which is based on the cognitive concepts will include various thinking variables that are required to develop advanced thinking skills and which are fundamentally made in young children's developmental processes. Through this, the purpose is to establish knowledge, cognitive ability in various areas, and logical and systematic thinking system. This program aims to develop self-directed learning attitudes and self-control ability (cognitive control, motivation control, behavior control) since creativity and leadership need to be balanced in the Global Leader Model.

The concept and components of creativity

Although creativity can be variously defined in accordance with researchers' approaches, Guilford (1970) described the ability to come up with new ideas, Creative thinking is a process of leading to the transition of knowledge using divergent producing, and divergent producing is the process to explore memory in order to generate multiple solutions to a problem (Han et al., 2005). Torrance (1974) claimed creativity is a new and unique idea, namely a new approach to a problem, and defined creativity broadly as the process of sensing a problem, searching for possible solutions, drawing hypotheses, testing and evaluating, and communicating the results to others. Sternberg (1985) claimed creative ability needs to be balanced with cognitive ability and personality factors, Amabile (1993) suggested that intrinsic motivation, domain-specific knowledge, and relevant skills with creativity are important for developing creativity. This means creativity comes from the integration of cognitive, affective, motivational, and environmental factors. Based on Amabile's intrinsic motivational theory and Sternberg's three dimensional model, Urban and colleagues (1995) conceptualized creativity as five different elements, process to produce products, products of creativity, personality of creative individuals, environment to stimuli creativity, and problem to be solved (Lee et al., 2004ab; Lee, 2005ab). Lee (2002ab) defined creativity as the integral element of the individual's ability and personality which produces

new, original, and proper products, and designed the ‘volcano model’ that is based on the integral creativity test for young children. The model explained an individual’s intrapersonal environment (heredity, natural environmental factor) as its potential interacts with cognitive ability (IQ, thinking skills, perception) and affective character (personality, motivation) in each task area (literature, art, math, science, information communication) in order to obtain a creative product. It also emphasized the importance of the social and cultural environment to generate creativity (La & Lee, 2018).

On the basis of the concept of creativity, this study conceptualizes creativity as an integral concept of creative ability, creative personality, and creative problem solving, and includes fluency, flexibility, originality, imagination, elaboration, curiosity, sensitivity, and task commitment. The creativity programs developed in this study are based on that concept and focus on activities to cultivate the ability as global leader, to generate multiple and original ideas, to achieve creative problem solving. Young children and primary graders can experience the discovery of creativity in daily life, the organization of knowledge through a variety of thinking and explosive activities, the products of elaborate, meaningful, and original product, ideas and activities to solve prospective problems.

The concept and components of leadership

Recently, there has been increasing attention to and perception of the importance of leadership. The concept of leadership can be variously defined in accordance with research purposes and social environment. Plowman (1981) categorized leadership as charismatic, intuitive, generative, analytic, evaluative, and synergistic characteristics. The charismatic characteristic means having a mysterious ability to assign duties and inspire enthusiasm to achieve them. The intuitive characteristic is the ability to foresee future situations based on inferences from the current situation and sensitivity to small clues. The generative characteristic, which is relevant to creativity, is the ability to define problems in a new way and to create original ideas or work. The analytic characteristic is being able to understand the elements a system and to analyze contribution of each element’s contribution. The evaluative characteristic refers to the ability to judge the effectiveness and efficiency of activities or programs. The synergistic characteristic is the ability to reduce working time or to induce productivity by increasing it more than 5 times or beyond expectation.

Sisk (1993) mentioned that the definition of leadership is as various as the number of researchers and proposed to define a leader as the person who assists people to perform work. Those leaders are voluntary, autonomous, and inventive. They influence other people to maximize their abilities. Sisk’s interactive creative leadership model consists of having a shared vision of the future, having the courage to take risks, flowing in creative action, appreciating of others’ talents, including recognition and evaluation of one’s capability to become a creative leader. On the basis of those theories and in consideration of leader’s the characteristics required of the leaders in modern society, those leaders need to be qualified

by virtue of having cognitive ability, of creatively generating ideas, and of having communication skills to pursue other people for new values. The leader can be a creative person with cognitive ability and creative potential who can inspire the creative potential of the followers.

Whereas previous research has focused on self-leadership and servant leadership, this study proposes the concept of leadership that includes creative leadership. Manz and Neck (2004) defined self-leadership as an individual's internal characteristic to lead oneself and leadership as influencing oneself and other people to establish self-direction and self-motivation as a self-leader. Since people play leader roles in either small or large groups and self-leadership represents a universal individual-level process and the essence of leadership, the perspective emphasizes the importance of self-leadership in daily life. Therefore, self-leadership represents leadership influencing themselves and others to control them and contains a universal characteristic that anyone can also develop as an individual level characteristic. Manz and Neck (2004) explained that individuals can lead themselves by specific strategies and proposed three strategies of behavior, reward, and cognition based on intrinsic motivation theory and social cognition theory.

Also, given that a leader must both give direction to and serve other people, servant leadership has been emphasized. Spears (1995) proposed the 10 factors of listening, empathy, healing, awareness, persuasion, foresight, conceptualization, stewardship, commitment to growth, and community building as key to performing servant leadership. The servant leadership role reaches out to perform common goals for community members through showing respect and consideration to others, sharing with and supporting members. This study implies that servant leadership has respect and consideration for others, supports members' growth through community building, shares leadership and includes respect to others and community care as sub factors of servant leadership. Respect for others includes caring for others' situations, emotions, opinions and choices, recognizing and respecting others' values, and listening to others with acceptance and an active listening attitude. Community care includes sharing, encouraging, and helping each other achieve common goals.

Kim (2008) explained the visionary leadership type in Goleman's leadership types, for example, a young child who plays as a leader in daily play situations proposes new ways to play and analyzes a problem with a comprehensive perspective, makes an effort to solve a problem utilizing knowledge and information,. Kim explained this type of leadership as meta-cognition and creativity. Kang (2008) described having a positive influence, establishing, interactive relationships, and creative problem solving as three requirements in leadership and creativity.

The creative thinking process precedes discovery of a problem, setting up strategies to solve the problem, and then generating a solution by comparing and reorganizing the relevant knowledge. This is the task of searching for information and knowledge and reorganizing a problematic situation with a new point of view. The fact that basic knowledge

is required to generate creative ideas shows that knowledge is an essential element for creative output, although sometimes knowledge can be barriers to taking new views (Han et al., 2005). Therefore, this study has investigated creative leadership in relation to individual characteristics based on the characteristics of the creative leader, the creative cognitive process and the thinking process. In line with this perspective, creative leadership can be defined as creative problem solving to motivate members to share common goals containing creative potential and cognitive ability, including creative ability, cognitive ability, and decision making ability. Focusing on the concept of leadership, the program developed in this study promotes the development of leadership consisting of servant, self-, and creative leadership and self-management. Self-leadership consists of self-management and constructive thinking; servant leadership consists of respect for others and community care; and creative leadership includes the creative, cognitive, and decision-making abilities.

Theoretical Background and GLM

Schlichter (1986, 1997) proposed the 'Talents Unlimited Model' to make students aware of their potential and to empower teachers to nurture the thought process talents. Teachers can use productive thinking, decision making, planning, forecasting, communication, and academic talent as strategies to foster students' special capabilities. Schlichter insisted that students must realize they have to make an effort to improve their own thinking skills. He proposed the "McTalent burger" to explain the Talents Unlimited Model to secondary school students. Academic talent as a basic element means the knowledge foundation that gives flavors with the condiments of forecasting, communication, planning, communication, and productive thinking (Lee et al, 2005, p. 208). This study takes the position that we need to nurture self-directed learners, learners with insightful vision, learners who can produce valuable outputs through multiple flexible thinking, and extraordinary leaders in each field. Therefore, in order to nurture global leaders, an integrative effort must be made to discover their potential in early childhood and primary grades, to develop their basic knowledge, specialty, creative problem solving skills, and leadership.

A global leader model designed as a guideline for curriculum development for integrative education aims to integrally guide cognition, creativity, and leadership. First, in relation to academic talent, cognition can be enhanced by acquiring knowledge and concepts that are fundamental knowledge based in specific subjects. Therefore, the cognitive area contains cognitive factors IQ, knowledge, information, comprehension, thinking/exploring skills, and problem solving skills. Sub-factors in each category include multiple intelligence (linguistic, logical/mathematical, temporal/spatial, musical-bodily/kinesthetic, understanding of nature, and intra-interpersonal intelligence), domain knowledge (language, number, and science), critical/logical thinking (inductive/deductive thinking, analogy), intuitive insight, space/visualization ability, inference, and verbal understanding. Second,

the creativity area in relation to productive creativity contains the creative ability (fluency, flexibility, originality, elaboration, imagination), the creative personality (curiosity, sensitivity, task commitment), and a creative problem-solving ability. And the leadership area contains self-leadership, servant-leadership and creative-leadership. In order to foster leaders who have the three aspects of leadership, the components of leadership include leadership, motivation, and affection. Self-leadership includes self-management and constructive thinking; servant leadership includes respect for others and community care; and creative leadership includes creative ability, cognitive ability, and decision-making skills.

Global leaders need to have creative thinking, attitudes, and problem-solving skills combined with cognitive ability, that is, academic talent, in order to recognize and analyze problems after viewing comprehensive situation, to utilize information and knowledge optimally to solve problems, and to accomplish common goals for members through self-directed learning attitudes and self-control (cognitive control, motivation control, and behavior control). From that perspective, Figure 1 depicts the 'Global Leader Model' designed in this study.

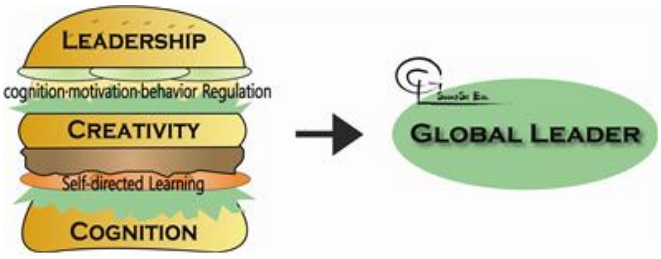

Figure 1. Global Leader Model

Characteristics of the GLM program

In order to effectively cope with the rapidly changing global knowledge and information society, the issue of creativity, cognition, and leadership development in young children and children is drawing more attention in educational practice and academia. Although there are increasing attention to the importance of and demands for creative education, there are still limited considerations of educational achievement in cognition, creativity, and leadership development to foster young children as global leaders. First of all, an educational curriculum on creativity, cognition, and leadership by different steps and educational programs by levels from 1st through 6th grades need to be provided in order to make connections between the early childhood and elementary school periods.

Once an educational program by steps is provided in early childhood education and elementary schools, it will help teachers who want customized education. Ultimately it will enable young children to start to develop their creativity, cognition, and leadership in their early developmental stages. A creativity, cognition, and leadership educational program by steps, which will be tested in terms of effectiveness and is based on the Global Leader Model, aims to cultivate children's capability as global leaders, and to achieve balanced development among cognitive ability (IQ, knowledge, information, thinking/exploring skills), creativity (creative ability, creative tendency, creative problem solving) and leadership ability (leadership, affection, and motivation). The curriculum focuses on fostering self-directed learning attitude and self-control (cognitive control, motivation control, behavior control). Congruent with the literature on program development and theories and research on creativity, cognition, and leadership, cognitive areas contain cognitive factors based on Gardner's theory of multiple intelligences. The development of creativity and creative problem solving refer to the Future Problem Solving Program developed by Torrance. Specifically, the development of a model creativity development program serving as guideline for program design is based on Betts' (1985) autonomous learner model. The leadership area is based on the intra/interpersonal intelligence in Gardner's multiple intelligences model and is divided into self-leadership, servant leadership, and creative leadership. Self-leadership consists of self-management and constructive thinking; servant leadership consists of respect for others and community care; and creative leadership consists of creative ability, cognitive ability, and decision making skills.

Furthermore, although it is based on the theory of multiple intelligences, considering young children's developmental characteristics, the cognitive area contains five types of intelligence, including linguistic, logical/mathematical, nature, musical-bodily/kinesthetic, and space/temporal aspects. The cognitive area focuses on enhancing creative and logical thinking skills, developing the balance of creativity-cognition-leadership, and fostering self-directed a learning attitude and self-control (cognitive control, motivation control, behavior control). It consists of a total of eight levels including two levels in the early childhood period and six levels in the elementary school period. The example of a global leader program using the Global Leader Model is illustrated as follows.

An example: Components and characteristics of a global leader educational program for young children

Composing program

The program that promotes talent in young children to become global leaders is based on a Global Leader Model. A variety of theories relevant to creativity, including Gardner's multiple intelligence theory, Sternberg's triarchic intelligence theory, and Lee's creativity

theory of Volcano model (2003) were used in developing the program. While the content areas are based on eight types of the multiple intelligence areas, five types of intelligence, including linguistic, logical/mathematical, temporal/spatial, musical-bodily/kinesthetic, understanding of nature, and intra-inter-personal intelligence were used in the study on the development of the Korean MI test (Lee, 2007). Creative processes composed of basic, explore, enrichment, and project stages were used to develop creative problem solving, and creative ability and personality based on cognitive activities.

Program characteristics

The GLM Program that promotes talent consists of small group, individualized sessions considering developmental, cognitive, affective, creative characteristics. It also consists of an individualized program that applies differentiate curricula based on diagnostic assessment results after administering readiness, creativity, and leadership tests. By analyzing each child's profile in terms of the whole education process, its guidance focuses on balanced development to compensating for weaknesses as well as detecting and developing excellence (strengths) in certain areas. By various activities in English via an English Immersion program, children can acquire knowledge of foreign cultures and develop a shared vision of world (See Table 1).

Table 1. Construct of GLM program for infant and young children

Level		Language/ social study	Math	Science	Leadership	English
Level 1 (4~5 years)	1	integration		Basic-nation in mystery		
	2	integration		Explore-nation in exploration		
	3	integration		Enrichment-nation in imagination		
	4	integration		Project-nation in fantasy		
Level 2 (5~6 years)	1	Nice to meet you	Classification - Simple classification Cognition – recognition	Beautiful design	Recognition and evaluation of emotion/expression/ leadership-self-understanding skill	**Immersion Program** Communication Art & Craft Creativity Physical ability Language Season
	2	Traditional story time	Ordering-simple sequence, number-concept, counting	Search for mom	Facilitating thinking emotion/leadership-communication skill	**Immersion Program**
	3	Various transportation	Figure-plane Measurement -number, quantity	Moving match	Utilizing emotional knowledge/leadership -interpersonal skill	**Immersion Program**

	4	Mass-communication	time-time cognition, time reading, space-recognition	Flower bunch with light	Reflective control of emotion/leadership-decision making, group management skill	**Immersion Program**
Level 3 (6~7 years)	1	Fresh meeting	Classification –complex classification Cognition-number Symbol cognition	Amazing life , life and living organism	Intrapersonal character (self-leadership, constructive thinking)	**Immersion Program**
	2	I'm an inventive genius	Order-double sequence Number-operation	Thick root Thin root	Intrapersonal character (self-leadership II-self-management)	**Immersion Program**
	3	Mysterious cosmos and earth	Figure 3D Measurement -length	Bone, what is its function?	Interpersonal character, respect for others	**Immersion Program**
	4	100 mute discussion	Time-elapsing time, Space-up, down, inside, outside	Colorful leaves	Interpersonal character-support growth-community building	**Immersion Program**

Result: An effect of GLM program on the young children's talent

Identification of the different effects by educational environment is very important, so experimental studies were carried out after developing the GLM programs. The results of experiment conducted in T kindergarten was as follows. The effects of the GLM program as education environment on the talent (cognition, creativity, leadership) improvement of five-year-olds were identified and verified the differences of the effects on young children's talent improvement according to different group types in this study. To identify the effect of this program, 47 five-year-olds were selected and they were divided into two experimental groups and one controlled group. 'Experimental group 1' was composed of a small group of 7 five-year-olds, 'experimental group 2' was composed of a large group of 23 five-year-olds and the 'controlled group' was composed of 17 five-year-olds. GLM program was performed on experimental group 1 and 2 and regular curriculum was performed on the controlled group. ICT-K (Lee, 2014) for measuring creativity, scientific and mathematical problem test by Lee were applied as pre and posttest. In conclusion, the GLM was confirmed to be effective to cognition, creativity, leadership improvement of five-year-olds, and was confirmed to be effective to young children's talent improvement regardless of the group size. Therefore, it should be a convenient educational program respecting the characteristics

and individuality of young children considering 'young children's interest, concern, cognition, creativity, leadership level and social background and age' rather than 'group size' concerning types and it also suggests that considering the helpfulness of the global leader program in improving young children's talent, an application method and a study on verification of the effectiveness of that method is necessary when it is to be used in a general early childhood educational institution.

Conclusion

In the knowledge and information society that is accelerating the globalization process, there is increasing attention to the necessity of having a vision for our future society and international competitiveness. Therefore, there is a need for educational activities to detect academic talent at the early developmental stage, to install creative thinking and problem solving skills, and to foster global leaders and creation of creative educational environment. This study designed a Global Leader Model for fostering cognition, creativity, and leadership and suggested the development of the talent development programs according to the models. Based on the Global Leader Model as an education environment, diverse programs from early childhood stage through elementary school stage will be developed to promote academic talents in cognition, creativity, and leadership that can be used in early childhood educational settings and elementary schools. If the Global Leadership Model and the educational program for fostering creativity, cognition, and leadership can be used as suggested in this study, they will contribute to progress in infant and early childhood education. On the basis of using the same model that has consistency and continuity, the development of a curriculum for cognition, creativity, and leadership will play an important role in directing early childhood education and to foster self-directed learners and global leaders. Moreover, teachers who work in the early childhood and primary grade periods will receive benefits in administering creativity education and leadership education in reality, and ultimately young children and primary graders can develop systematically specialized talent from their early developmental stage and prepare for their roles as global leaders.

References

Amabile, T. M. (1993). Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace. *Human Resource Management Review, 3,* 185-201.

Betts, G. (1985). *Autonomous learner model: For the gifted and talented*. Greeley, CO: Autonomous Learning Publications and Specialists.

Davis, G. A. (1997). Identifying creative students and measuring creativity. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed., pp. 269-281). Boston:

Allyn and Bacon.

Feldhusen, J. F. (1993). A conception of creative thinking and creativity training. In S. G. Isaksen, M. C. Murdock, R. L. Firestien & D. J. Treffinger (Eds.), *Nurturing and developing creativity: Emergence of a discipline* .Norwood, NJ: Ablex.

Han, S. M., Kim, S., Park, H. S., & Lee, E. H. (2005). *Creativity person, environment, strategy*. Seoul: Haksisa.

Kang, H, J. (2008). *Study on the creative leadership program for preschoolers* (Unpublished master's thesis). Kwangju University.

La, J. S., & Lee, K. H. (2018). The effect of integrated activities using the five senses on improving children's creativity. *Global Creative Leader, 8*(1), 77-95.

Lee, K. H. (2002a). Creative ability and creative personality of 4, 5years old children, *The Korean Journal of Educational Psychology, 16*(3), 147-160.

Lee, K. H. (2002b). *The relations between creative thinking ability and creative personality of preschoolers.* The 7th Asia-Pacific Conference on Giftedness.

Lee, K. H. (2002c). The theory and tasks in development of creativity. *Giftedness and Gifted Education, 1(2),* 48-67.

Lee, K. H. (2003). *The development trends of creative thinking ability and creative personality of elementary school children*. The 15th biennial conference of the world council for gifted and talented children.

Lee, K. H. (2005a). The relationship between creative thinking ability and creative personality of 4 to 5 year-old preschoolers. *International Education Journal, 6*(2), 194-199.

Lee, K. H. (2005b). Development of individual creativity tests for preschoolers and elementary school children. *Korean Journal of Educational Psychology, 19*(4), 1023-1042.

Lee, K. H. (2005c). Effects of the CPS programs using scientific tales on the children's creativity and problem solving ability, *Research for Educational methods, 17*(2), 261-278.

Lee, K. H. (2005d). Differences of domain specific creativity according to the age group. *Korean Journal of Educational Psychology, 19*(1), 291-310.

Lee, K. H. (2007). A study on the development of Korea MI Test (K-MI) for identifying the giftedness of preschooler. *Giftedness and Gifted Education, 6*(2), 85-106.

Lee, K. H. (2009). Global-leader model for promotion of cognition, creativity and leadership. *The Journal of the Korean Society for the Gifted and Talented, 8*(3), 23-41.

Lee, K. H., & Choi, B. Y. (2009). The analysis of elementary level curriculum for improving creativity of the elementary school children. *The Journal of Creativity Education, 8*(1), 25-41.

Lee, K. H., Choi, B. Y., & Park, H. S. (2004a). Creativity and intelligence in preschoolers. The 8th Asia-Pacific conference on giftedness.

Lee, K. H., Choi, B. Y., & Park, H. S. (2004b). *Creativity and education*. Seoul: Haksisa.

Lee, K. H., Choi, B. Y., & Park, H. S. (2005). *Education of the gifted and talented* (Davis, G. A., & Rimm, S. B. 5th ed.). Seoul: Parkhaksa.

Lee, K. H., Kim, H. J., & Kim, O. B. (2008). *Best practices in gifted education* (Ann Robinson, A., Shore, B. M., & Enersen, D. L.). Seoul: Sigma Press.

Park, J. M. (2017). The effects of convergence instruction in high school on improvement of career core competences, core competences, and creative personality. *Global Creative Leader, 7*(2), 21-39.

Plowman, P. D. (1981). Training extraordinary leaders, *Roeper Review, 3*(3), 13-16.

Schlichter, C. L. (1986). Talents unlimited: An in service education model for teaching thinking skills. *Gifted Child Quarterly, 30*, 119-123.

Schlichter, C. L. (1997). Talents unlimited model in programs for gifted students. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed., pp. 318-327). Boston: Allyn & Bacon.

Sisk, D. A. (1993). Leadership education for the gifted. In K. A. Heller, F. J. Monks, & A. H. Passow (Eds.), *International handbook of research and development of giftedness and talent* (pp.491-505). New York: Pergamon.

Starko, A. J. (2005). *Creativity in the classroom*: *Schools of curious delight* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Sternberg, R. J. (1985). Implicit theories of intelligence, creativity, and wisdom. *Journal of Personality and Social Psychology, 49*, 607-627.

Torrance, E. P. (1974). *Torrence tests of creative thinking: directions guide and scoring manual*. Massachusetts: Personal Press.

Urban, K. K., & Jellen, H. G. (1995). *Test for creative thinking-drawing production*. Lisse, The Netherlands: Swet & Zeitlinger.

Korean Abstract

글로벌리더 모형(GLM) 제안 및 유아의 인지, 창의, 리더십 향상에 미치는 모형 효과

이경화 (숭실대), 양혜진 (숭실대)

미래 지식정보사회에서는 경쟁사회에 대처할 수 있는 자기주도적이며 창의적인 문제해결자, 다양한 영역에서 탁월성을 보이는 리더를 요구한다. 따라서 비판적 사고, 창의성과 리더십과 같은 고등사고기술을 함양할 수 있는 수업전략이 마련될 필요가 있다. 이에 따라 본 연구에서는 이경화(2009)가 개발한 유아의 인지, 창의, 리더십을 증진시킬 수 있는 '글로벌리더 모형(GLM)을 제안하고 그 효과를 확인하였다. GLM은 인지, 창의 및 리더십의 세 가지 범주를 포함한다. 인지영역에는 논리적, 분석적, 비판적 사고와 이해, 추론, 관계 등을 포함한다. 그리고 창의영역에는 창의적 능력(유창성, 융통성, 독창성, 정교성, 상상력)과 창의적 성격(호기심, 민감성, 과제집착력) 창의적 문제해결력이 포함된다. 그리고 리더십 영역에는 개인적 리더십, 사회적 리더십과 창의적 리더십이 포함된다. 이러한 글로벌리더 모형을 기반으로 하여 구성된 프로그램은 세가지 범주의 능력을 증진시킬 수 있을 것이라 가정하였으며, 그 효과가 본 연구를 통해서 확인되었다.

주요어: 인지, 창의, 리더십, 글로벌리더 모형(GLM)